

(4) Interference was formed between object light and reference light by using an Ar laser (wavelength: 488 nm). The three-layer photosensitive plate for recording a hologram was placed at a position, at which a fringe pattern formed by the interference could be caught. The photosensitive plate was exposed to Ar laser light (2 mW/cm^2) for a prescribed period of time under the conditions, and an interference fringe to be a hologram could be recorded on the photosensitive plate.

The resulting hologram exhibited a diffraction efficiency of 47% at an exposed amount of 40 mJ/cm^2 .

EXAMPLE 39

(1) 2.3 g of triallylisocyanurate prepolymer ("TAIC Prepolymer" produced by Nippon Kasei Chemical Co., Ltd.), 2.7 g of neopentyl glycol diacrylate ("NK Ester A-NPG" produced by Shin-Nakamura Chemical Co., Ltd.), 1.75 g of 3,3',4,4'-tetra(tert-butylperoxycarbonyl)benzophenone ("BTTB-25" produced by NOF Corporation), 0.02 g of 3,3'-carbonylbis(7-(diethylamino)coumarin) ("BC" produced by Midori Kagaku Co., Ltd.), and 4 g of acetone were mixed at an ordinary temperature to prepare a recording material composition comprising these components.

(2) to (4) A photosensitive plate for recording a hologram was produced and a hologram was obtained by conducting the same procedures as in items (2) to (4) of Example 38.

The resulting hologram could be recorded with an exposure light amount of 50, 100 and 200 mJ/cm^2 , and exhibited a diffraction efficiency of about 30%.

EXAMPLE 40

(1) 5.5 g of diallylorthophthalate prepolymer ("Daiso DAP Type A" produced by Daiso Co., Ltd.) was dissolved in 27.5 ml of acetone. 0.41 g of a 0.1N HCl aqueous solution was dissolved in 4.5 g of phenyltrimethoxysilane that had been separately prepared, and the resulting solution was mixed with the acetone solution obtained above, followed by stirring at 20°C for 1 hour. The resulting solution was heated in an oven with a temperature increasing rate of 10°C per hour from 20 to 80°C, and was allowed to stand at 80°C for 3 days, to remove the solvent, methanol as a by-product and water. As a result, a transparent uniform complex of a diallylphthalate and an inorganic substance was obtained as a reaction product.

(2) 2.5 g of the reaction product, 2.5 g of neopentyl glycol diacrylate ("NK Ester A-NPG" produced by Shin-Nakamura Chemical Co., Ltd.), 1.75 g of 3,3',4,4'-tetra(tert-butylperoxycarbonyl)benzophenone ("BTTB-25" produced by NOF Corporation), 0.005 g of 3,3'-carbonylbis(7-(diethylamino)coumarin) ("BC" produced by Midori Kagaku Co., Ltd.), and 4 g of acetone were mixed at an ordinary temperature to prepare a recording material composition comprising these components.

(3) to (5) A photosensitive plate for recording a hologram was produced and a hologram was obtained by conducting the same procedures as in items (2) to (4) of Example 38.

The resulting hologram could be recorded with an exposure light amount of 50, 100 and 150 mJ/cm², and exhibited a diffraction efficiency of

about 30%.

EXAMPLE 41

(1) 3 g of diallylorthophthalate prepolymer ("Daiso DAP Type A" produced by Daiso Co., Ltd.), 1 g of thiophenol ("TP" produced by Sumitomo Seika Chemicals Co., Ltd.), and 0.02 g of azobisisobutyronitrile as a catalyst were dissolved in 30 ml of acetone. The resulting solution was refluxed at 70°C for 2 hours, and put in 200 g of methanol, in which 0.1 g of hydroquinone had been dissolved, to obtain an adduct of a diallylorthophthalate prepolymer and thiol, as a reaction product.

(2) 2.5 g of the reaction product, 2.5 g of neopentyl glycol diacrylate ("NK Ester A-NPG" produced by Shin-Nakamura Chemical Co., Ltd.), 1.75 g of 3,3',4,4'-tetra(tert-butylperoxycarbonyl)benzophenone ("BTTB-25" produced by NOF Corporation), 0.005 g of 3,3'-carbonylbis(7-(diethylamino)coumarin) ("BC" produced by Midori Kagaku Co., Ltd.), and 4 g of acetone were mixed at an ordinary temperature to prepare a recording material composition comprising these components.

(3) to (5) A photosensitive plate for recording a hologram was produced and a hologram was obtained by conducting the same procedures as in items (2) to (4) of Example 38.

The resulting hologram could be recorded with an exposure light amount of 50, 100 and 150 mJ/cm², and exhibited a diffraction efficiency of about 30%.

EXAMPLE 42

(1) 10 g of diallylorthophthalate prepolymer ("Daiso DAP Type